

CLAIMS

1. Coffee machine with at least one extraction device (20) for producing coffee, an electronic control unit (40) and a hot water and/or steam supply (50), characterised in that
the extraction device (20), the control unit (40) and/or the hot water respectively the steam supply (50) are each assigned a black box (62, 63, 64, 65) provided with at least one transponder or similar to record certain data and/or register certain functional processes, while the recorded data can be analysed in particular by a computer program.
2. Coffee machine according to claim 1, characterised in that the data of the black boxes (62, 63, 64, 65) stored in the transponders (62, 63, 64, 65) which are in the form of memory can be captured and transferred directly or via a network connection, advantageously the internet, to a computer (100) for analysis.
3. Coffee machine according to claim 2, characterised in that the data stored in the transponders (62, 63, 64, 65) can be read off by means of a wireless or a cable-connected reader unit (70).

4. Coffee machine according to claim 1, characterised in that the data transfer from the transponders can be conducted via control modules directly via the internet into a mainframe or similar in which this transmitted data is analysed and, where necessary, replies are sent or a service technician is notified to provide repair or maintenance.
5. Coffee machine according to claim 1, characterised in that the black boxes (62, 63, 64, 65) are attached onto functional units (20, 30, 40, 50) of the coffee machine forming independent modules, which can be slid into the housing frame (10) and are provided with connection parts (26, 27; 33; 44; 55, 56) which are coupled in the slid-in condition with corresponding connection parts (26' 27'; 33'; 44'; 55', 56') of the housing frame.
6. Coffee machine according to claim 5, characterised in that the functional units (20, 30, 40, 50) fixed to the housing, which are designed as extraction device (20) for production of coffee, as electronic control unit, as hot water or steam supply (50) or others, are each assigned a black box.
7. Coffee machine according to claim 1, characterised in that in the case of the extraction device (20) for producing coffee, the number of motor activations for driving the brewing cylinder (31) and/or the grinders (22, 23), the number of valve openings for the hot water feed and/or other values are recorded in the black box.
8. Coffee machine according to claim 1, characterised in that in the case of the electronic control unit (40), functional processes and time lapses are recorded in the black box on actuation.
9. Coffee machine according to claim 1, characterised in that each of the black boxes (62, 63, 64, 65) is designed in such a way that it can be used to record error messages and the status of the coffee machine.

10. Coffee machine according to claim 1, characterised in that for the hot water or steam supply (50), the water quantities, marches of pressure and/or temperature or other values are recorded in the black box.
11. Coffee machine according to claim 1, characterised in that a reader (90) of proximity or insertable identity cards is included.
12. Coffee machine according to claim 1, characterised in that the black boxes are attached to the housing frame (10) or chassis.
13. Coffee machine according to claim 1, characterised in that extraction device has a piston-cylinder unit (25) with a brewing cylinder (31) and with a two-part piston (36), where this piston (36) displays a front and a rear piston part (38, 39) which are connected with each other on their outer sheath by a seal with a U-shaped cross-section (37), where the latter is fixed all around on the lips (37') on its end to one or other piston part (38, 39).
14. Device for electronic recording of certain data, in particular for individual functional units, incorporating a transponder chip (83) with firstly a data source and secondly a reader (70), characterised in that the device displays a number of coils (66, 67) disposed in a black box (62, 62', 63, 64, 65) and isolated from each other, of which a first coil (66) is connected electrically with a control unit (40) acting as a data source, registering certain functional processes and time lapses, where the transponder chip (83) is also integrated into the black box (62, 62', 63, 64, 65) and connected to the second coil (67) which has an electromagnetic effective connection with the first coil (66).
15. Device according to claim 14, characterised in that the transponder chip (83) is in the form of an EEPROM (electrically erasable programmable read-only memory).

16. Device according to claim 15, characterised in that the data stored on the transponder chip (83) can be read off using a reader (70).
17. Device according to claim 15 or 16, characterised in that the data stored on the transponder chip (83) can be deleted and the transponder chip (83) is designed to be overwritten.
18. Application of the device according to claims 14 to 17, for a coffee machine displaying a number of functional units, characterised in that individual functional units (20', 50') are provided with their own devices (60) connected via cables (62a, 65a) to the control unit (40) and designed in the form of a black box (62').